

**QUARTERLY REPORT**

**THE CALYPSO™ MANGO PROJECT  
REPORT FOR OOLLOO FARM MANAGEMENT**

**Agronomic Assessment of Mataranka, Katherine, and Dimbulah Farms -  
April 2011**

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**Report for Oolloo Farm Management**

**Agronomic Assessment of the Calypso™ Mango Properties at Mataranka,  
Katherine, Dimbulah Managed by Oolloo Farm Management**

**CONTENTS**

**This report provides an overview of the current agronomic status following a visit to the Calypso™ Mango Project properties at Mataranka, Katherine, and Dimbulah. Visits were from the 3-8th April 2011.**

**Disclaimer**

**The conclusions in this report are drawn from on-site observations and analytical data provided by Phosyn Analytical. Recommendations have been made from the best-known information at the time of the visit. Sunshine Horticultural Services Pty Ltd does not accept liability for any lack of performance as environmental and managerial factors beyond our control influence crop production. All products are to be used at label rates unless otherwise specified.**

## **Introduction**

The April farm visits provide the opportunity to review the post wet season condition of trees and assess what may be required in nutritional and pruning programs in preparation for the 2011 crop. It also provides the opportunity to assess the impact of the postharvest PBZ applications to trees. In general the extreme wet season experienced across northern Australia over summer has had some impact on the orchards across all farms noticeably changing the phenological patterns of growth bringing flowering forward in some situations and delaying the opportunity for floral induction on other farms.

## **Mataranka 1 and 2 Farms – Mataranka NT**

The Calypso™ Project orchard at Mataranka was visited on the 5th April 2011. The farm was presented in good condition with the orchard floor tidy and trees overall making good growth over the summer months. However, there were some small pockets of trees that hadn't shown any signs of renewed growth since the harvest despite leaf colour and overall tree health looking sound. There is still ample time for these trees to flush before the expected time of flowering (June/July).

### **Nutrition**

Collection of leaf samples for nutritional analysis is due before flowering and care is required to sample at the correct stage of tree development. Continue with foliar zinc applications when flush opportunities occur.

Due to tree growth achieved over summer apply gypsum at 4 kg/tree pre-flowering in 2011.

### **Irrigation**

The farm has continued to receive good rainfall over the wet season and irrigation has been minimised to fertigation applications only. As the dry season begins irrigation should be withdrawn to impose a mild stress on trees to reduce their vegetative growth capacity and encourage flowering.



**Mataranka at the end of 2011 wet season**

## **Weed control**

Management of the orchard floor was much improved to that observed in January where due to inclement weather access had been restricted.

## **PBZ Results**

There was evidence of the postharvest applied PBZ showing in trees across the farm. This is typified by a slight twisting and curling of leaves on the most recently matured flush. The result was not as strong as in 2010 possibly due to the leaching summer rainfall however, together with “normal” winter temperatures flowering should occur as expected.

## **Pruning**

At the time of the farm visit, “2010 Horticultural Services” had carried out demonstration pruning on site and provided a quote to prune the whole farm. Pruning is a skilled job that requires experienced operators who can deliver a consistent result that meets job specifications. After inspection of a number of trees that had been pruned by the company it was recommended that their quote be accepted for the 2011 pruning season.

To reduce hand-pruning the orchard was using a tractor-mounted cutter bar to skirt trees to a sufficient height to avoid propping during the fruiting season.

## **Poor Tree Growth**

A small area of backward trees was inspected in Zone 5 which has had a history of sub-standard performance. The trees had not made any significant growth over the summer and were smaller in stature when compared to adjacent trees in the Zone. As these are largely perimeter trees farm management had inspected the area for termite activity and ruled out infestation. There are two likely scenarios with respect to the condition of these trees: 1) the trees are a residual group planted on rootstocks that were “genetic runts” delivered from the supplying nursery; or 2) the soil is poorer in this region and with the double the rainfall average falling over the summer excessive leaching has occurred leaving the trees nutritionally depleted.

To test the latter it was recommended that the trees be treated with 150 g/tree of urea repeating the application within 3 weeks if there was no visible change in leaf colour or canopy growth. It was also recommended that these trees be leaf-sampled separately pre-flowering so that a comparative nutritional profile could be determined to guide future action.

## Oolloo Farm – Katherine, NT

The Calypso™ Project orchards known as Oolloo Farm (K1 & K2) were visited on the 6th April 2011.

### **K1**

The wet season at Katherine has been prolonged delivering twice the annual average rainfall over the summer months. This was very evident by the saturated state of the soils when visiting the farm with free surface water present over the lower areas. Trees had made little growth during summer but were beginning to show signs of new flush at the time of the visit. It is expected that once the dry season begins significant growth will occur across the orchard.

### **Nutrition**

Tree leaf colour was still acceptable but the situation may change once post wet season growth occurs. Leaf colour and tree vigour in block 19 were below expectations and a nitrogen application of 4 g/m<sup>2</sup> of elemental N either as urea or sulphate of ammonia was recommended ASAP.

There is a requirement to carry out pre-flowering leaf sampling to define the nutrient status of the trees once growth has settled and matured just prior to flower bud development.

It is recommended that the pre-flowering gypsum application be given at the rate of 5 kg/tree across the farm except for the later planted blocks 21 and 22 where 3 kg/tree should be applied.

### **Irrigation**

The wet season had not broken at the time of the visit and the farm had received good summer rainfall. Coming out of the wet season irrigation should not begin until there are clear signs of flowering, i.e. significant break of flower buds.

### **Weed Control**

The orchard floor was slashed with inter-row weeds under control at the time of the visit. Orchard floor management pressures will decrease as the dry season takes hold except for weed growth under irrigation outlets.

### **PBZ results**

There was evidence of the effect of the postharvest applied PBZ showing in trees across the farm. This is typified by a slight twisting and curling of leaves on the most recently matured flush. The result was not as strong as in 2010 possibly due to the leaching summer rainfall however, together with “normal” winter temperatures flowering should occur as expected.

### **Pruning**

At the time of the farm visit, “2010 Horticultural Services” had carried out demonstration pruning on site and provided a quote to prune the whole farm. After inspection of a number of trees that had been pruned by the company it was recommended that their quote be accepted for the 2011 pruning season.

## **K2**

Similarly to the K1 farm persistent rain over the wet season resulted in waterlogged soils with surface water lying across some of the blocks. Prolonged water-logging and lack of sunshine has resulted in little growth on many of these trees at a time when at least one significant growth flush should have occurred. Young trees require good growth between crops to increase yield from year to year.

### **Nutrition**

Due to lack of summer growth leaf colour across the orchard looked good however the situation may change if strong growth occurs with the arrival of the dry season.

There is a requirement to carry out pre-flowering leaf sampling to define the nutrient status of the trees once growth has settled and matured just prior to flower bud development.

It is recommended that the pre-flowering gypsum application be given at the rate of 5 kg/tree across the farm.

### **Irrigation**

The farm had received good summer rainfall and irrigation was minimised. Coming out of the wet season irrigation should not begin until there are clear signs of flowering, i.e. significant break of flower buds.

### **Weed control**

The orchard floor was presented in good condition at the time of the visit.

### **PBZ**

The PBZ application across this orchard appears to have given good results again being close to the optimum rate for the trees. This is seen in the small amount of compaction seen on the odd tree scattered through the farm indicating that the dose applied was just short of causing short-term damage to growth.

### **Pruning**

At the time of the farm visit, "2010 Horticultural Services" had carried out demonstration pruning on site and provided a quote to prune the whole farm. After inspection of a number of trees that had been pruned by the company it was recommended that their quote be accepted for the 2011 pruning season.



**K2 trees before wet season growth**

## **Dimbulah Farms, NQ**

The Calypso™ Project farm at Dimbulah was visited on the 4th April 2011. Northern Australia had an excessively wet summer and this was still evident at Dimbulah at the time of the visit in early April. Surface water was lying in some sections of the farms and there were areas where it was unsafe to drive conventional vehicles. Surprisingly most trees had made some new growth over the summer months improving the potential for increased production in 2011.

### **Nutrition**

Orchard colour remains good across the farm despite no postharvest nitrogen being applied. Leaf sampling for nutrient analysis should be collected prior to flowering. As leaf boron levels remain high across the orchard apply foliar B as 1% Solubor® at one third flower extension.

### **Irrigation**

Consistent and abundant rainfall has largely negated the requirement for irrigation but as we enter the dry season and trees begin to flower irrigation systems will need to be ready to support floral growth.

### **Weed control**

Persistent rainfall leading to waterlogged soils has made difficult to maintain orchard floors and intra-row weed control. These will be addressed when conditions improve.

### **PBZ**

PBZ application to encourage floral induction is not carried out at Dimbulah until the late summer flush matures in April. The following are the recommended rates for 2011:

### **Pruning**

Some trees had been pruned prior to the visit and the opportunity was taken to view the results. The general principles of clean out the centre of the tree and removing the inner canopy had been met indicating the farm staff had an understanding of the requirements of the tree. Pruning should be completed prior to flowering if possible.



**Water log at Dimbulah in April 2011**

## **Post Visit Update**

**Since visiting the Dimbulah Farms in early April flowering across most of the blocks has quickly developed. This is unusually early for this site and is most likely a response to stress caused by the prolonged period of waterlogged soils over the summer months. The application of PBZ has been suspended for the year.**

**Managing flower and fruitlet health during the colder months imposes an additional challenge and the success is quite dependant on weather conditions. Once blocks near peak flowering a fungicidal program should begin.**

**Monitor for insect pests and take appropriate action when necessary.**